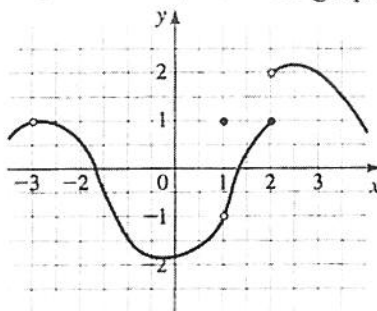


Name: _____
 PC: Even More Evaluating Limits

Date: _____
 Ms. Loughran

Do Now

1. State if the value of the limit, if it exists, from the graph of f . If it does not exist, explain why.



(a) $\lim_{x \rightarrow 3} f(x)$

(b) $\lim_{x \rightarrow 1} f(x)$

(c) $\lim_{x \rightarrow -3} f(x)$

(d) $\lim_{x \rightarrow 2} f(x)$

(e) $\lim_{x \rightarrow 2^+} f(x)$

(f) $\lim_{x \rightarrow 2} f(x)$

2. $\lim_{x \rightarrow -3} \frac{x^2 - 9}{2x^2 + 7x + 3}$

3. $\lim_{h \rightarrow 0} \frac{(2+h)^3 - 8}{h}$

4. $\lim_{x \rightarrow 1} \frac{x^8 - 1}{x^5 - x}$

Classwork

Evaluate the limit, if it exists.

5. $\lim_{x \rightarrow 9} \sqrt{x}$

6. $\lim_{x \rightarrow 4} \frac{x}{\sqrt{x}}$

$$7. \lim_{x \rightarrow 0} \frac{x}{\sqrt{x}}$$

$$17. \lim_{h \rightarrow 0} \frac{\sqrt{1+h}-1}{h}$$

$$8. \lim_{x \rightarrow -1^+} \frac{x+1}{\sqrt{x+1}}$$

$$18. \lim_{x \rightarrow 7} \frac{\sqrt{x+2}-3}{x-7}$$

$$9. \lim_{x \rightarrow 0} \frac{x-2}{\sqrt{x^2-4}}$$

$$19. \lim_{x \rightarrow -4} \frac{\frac{1}{4} + \frac{1}{x}}{4+x}$$

$$10. \lim_{x \rightarrow 0} \frac{x-4}{\sqrt{x}-2}$$

$$20. \lim_{x \rightarrow 0} \frac{\frac{1}{x+1}-1}{x}$$

$$11. \lim_{x \rightarrow 1} \frac{x^2-1}{\sqrt{x}-1}$$

$$21. \lim_{x \rightarrow 0} \frac{(3+x)^{-1}-3^{-1}}{x}$$

$$12. \lim_{x \rightarrow 1} \frac{x-1}{\sqrt{x^2+3}-2}$$

$$22. \lim_{x \rightarrow 0} \frac{(5+x)^{-1}-5^{-1}}{x}$$

$$13. \lim_{x \rightarrow 1} \frac{1-\sqrt{x}}{1-x}$$

$$14. \lim_{x \rightarrow 1} \frac{1-\sqrt{x}}{1+x}$$

$$15. \lim_{x \rightarrow 4} \frac{2-\sqrt{x}}{4-x}$$

$$16. \lim_{x \rightarrow 2} \frac{4-x^2}{3-\sqrt{x^2+5}}$$

Name: _____

PC: Limits Review 1

Date: _____

Ms. Loughran

Find the numerical value of each limit, or state that the limit does not exist, or is best described as being ∞ or $-\infty$.

1. $\lim_{x \rightarrow 5} (x^2 - 3x + 1)$

13. $\lim_{x \rightarrow -1} \frac{\frac{1}{x+2} - 1}{x+1}$

2. $\lim_{x \rightarrow 0} \frac{x-3}{5x+1}$

14. $\lim_{u \rightarrow 0} \frac{\sqrt{4+u} - 2}{u}$

3. $\lim_{x \rightarrow 0} \frac{x^2 - 4}{x^2 - 3x - 10}$

15. $\lim_{x \rightarrow 3} \frac{x^2 + 1}{x}$

4. $\lim_{x \rightarrow -1} (6x^2 - 3x - 1)$

16. $\lim_{x \rightarrow 2} (5x - 3)(3x + 5)$

5. $\lim_{x \rightarrow 9} \frac{3 - \sqrt{x}}{9 - x}$

17. $\lim_{x \rightarrow -5} \frac{x^2 - 25}{x^2 - 2x - 35}$

6. $\lim_{x \rightarrow 0} \frac{(5+x)^2 - 25}{x}$

18. $\lim_{x \rightarrow 0} \frac{9 - (3+x)^2}{x}$

7. $\lim_{x \rightarrow 5} \frac{x^2 - 25}{x - 5}$

19. $\lim_{x \rightarrow 2} \frac{\sqrt{2x}}{x+3}$

8. $\lim_{x \rightarrow 3^+} \frac{x-3}{\sqrt{x}-3}$

20. $\lim_{x \rightarrow 1} \frac{2x^2 - 9}{5 - x + 3x^2}$

9. $\lim_{x \rightarrow 4} \frac{x^3 - 64}{x^2 - 16}$

21. $\lim_{x \rightarrow 5} \frac{x^2 - 5x}{x^2 - 7x + 10}$

10. $\lim_{x \rightarrow 49} \frac{49 - x}{7 - \sqrt{x}}$

22. $\lim_{x \rightarrow 5} \frac{3x^2 - 18x + 15}{2x^2 - 10x}$

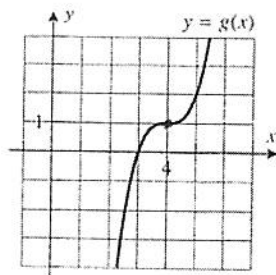
11. $\lim_{x \rightarrow 0} \frac{\frac{1}{x+1} - 1}{x}$

23. $\lim_{x \rightarrow 2^+} \frac{2-x}{\sqrt{x}-2}$

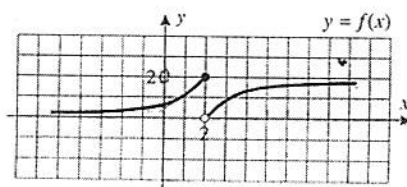
12. $\lim_{x \rightarrow -6^+} \frac{x+6}{\sqrt{x+6}}$

24. $\lim_{x \rightarrow 0} \frac{x}{(5+x)^2 - 25}$

25. For the function g graphed in the accompanying figure, find
- (a) $\lim_{x \rightarrow 4^-} g(x)$ (b) $\lim_{x \rightarrow 4^+} g(x)$ (c) $\lim_{x \rightarrow 4} g(x)$
 (d) $g(4)$ (e) $\lim_{x \rightarrow -\infty} g(x)$ (f) $\lim_{x \rightarrow +\infty} g(x)$.



26. For the function f graphed in the accompanying figure, find
- (a) $\lim_{x \rightarrow 2^-} f(x)$ (b) $\lim_{x \rightarrow 2^+} f(x)$ (c) $\lim_{x \rightarrow 2} f(x)$
 (d) $f(2)$ (e) $\lim_{x \rightarrow -\infty} f(x)$ (f) $\lim_{x \rightarrow +\infty} f(x)$.



27. For the function f graphed in the accompanying figure, find the limit if it exists.
- (a) $\lim_{x \rightarrow 1} f(x)$ (b) $\lim_{x \rightarrow 2} f(x)$ (c) $\lim_{x \rightarrow 3} f(x)$
 (d) $\lim_{x \rightarrow 4} f(x)$ (e) $\lim_{x \rightarrow +\infty} f(x)$ (f) $\lim_{x \rightarrow -\infty} f(x)$
 (g) $\lim_{x \rightarrow 3^+} f(x)$ (h) $\lim_{x \rightarrow 3^-} f(x)$ (i) $\lim_{x \rightarrow 0} f(x)$

